

## Holistic Testing for Continuous Delivery

Software engineering organizations are deploying new changes to production more frequently than ever – twice a week, daily, even many times per day. Teams are moving towards continuous delivery and deployment and transforming to a DevOps culture. Fitting testing into this continuous world is a bigger challenge than ever. How can teams feel confident to release new features continually, with their desired level of product quality?

Testing specialists on a team that's embracing frequent deployments may find they are expected to somehow get all the testing done "fast enough." Teams without testing specialists often lack sufficient automated regression test coverage and exploratory testing, which may result in major production problems.

To succeed with continuous delivery, it is essential that the whole delivery team takes responsibility for the necessary testing. They need more than tools and infrastructure to get small changes out frequently. They need confidence that those changes won't cause customer pain, and they need quick feedback to learn about the impact of those changes.

In this course, participants learn a holistic approach to testing activities that help teams succeed with continuous delivery. Using an infinite loop model, students learn practical ways to improve to get quick feedback. The course covers DevOps and continuous delivery terminology to help people in different specialties communicate and collaborate. Activities include:

- Understanding what to build, and how to plan for testing
- Visualizing the deployment workflow and identifying ways to shorten feedback cycles
- Using a test suite canvas to plan effective automated test suites
- Ways to fit all essential testing activities into the continuous software development loop
- Practice designing experiments to help teams overcome obstacles

The course follows the holistic testing loop from discovery to build, deployment, release, observability, learning from production, and applying those learnings to drive the next changes.

### Course Outline

#### Introduction - Module 1

- Quality-focused DevOps culture
- Holistic Testing model
- Discovery and planning
  - Evaluating and mitigating risks
  - Prioritizing quality attributes
- Seek to understand
  - Guiding development with business-facing tests (ATDD, BDD)

- Techniques to build shared understanding
- Choosing data & events for monitoring & observability

### **Deploy – Module 2**

- Continuous integration
- Continuous delivery / deployment
- Deployment pipelines – integrating testing activities
- Risk-based automation
- Testing infrastructure-as-code
- Measuring feedback loops

### **Release – Module 3**

- Release strategies to build confidence
- Testing in production – the safe way

### **Observe – Module 4**

- Service levels
- Monitor and alert for production problems
- Data to guide continuous improvement
- Making a system observable

### **Learn – Module 5**

- Learning from production usage
- Steps to achieve continuous delivery goals
- Designing experiments to overcome obstacles